

HANDICAP ADJUSTMENT

HKPN handicaps are typically calculated from the average performance of a yacht and crew during her last four racing events. Elapsed times from most races in Hong Kong and certain overseas events, such as the China Cup, may be used to calculate handicaps. Times from unique races such as single-handed or crew helm races are not used nor are races where conditions are deemed to be inconsistent or not fair to all of the racing fleet.

If a yacht races under IRC, SMS or even as part of class racing, recorded elapsed times may be used to update her HKPN. This ensures that a yacht's handicap always reflects her current performance.

The HKPN list on the HKSF website will usually be updated between races of a multiple race series and after single races and regattas.

HKPN change: the maths

Racing sailors will be familiar with how a handicap or rating is applied to an elapsed time to determine a corrected time and how the yacht with the lowest corrected time wins the race. They may not be familiar with how an elapsed time is used to change a HKPN so the following attempts to demonstrate how handicaps are derived.

Results are first checked for accuracy and to confirm that race conditions were fair for the entire fleet. Examples of unfairness would be when a few yachts finish significantly ahead of the rest of the fleet on corrected time. This would be indicative of light airs or adverse tides affecting only part of the fleet and not the early finishers. Once the conditions have been determined as fair, calculations can begin. The following results are from the 4th race in a series and will be used to demonstrate how handicaps are derived.

YACHT	HKPN	START TIME	FINISH TIME	ELAPSED TIME	CORRECTED TIME
KYTE	986	14:35:00	15:13:03	00:38:03	00:38:35
NO ONE ELSE	1041	14:35:00	15:17:05	00:42:05	00:40:26
GETAFIX	952	14:35:00	15:13:46	00:38:46	00:40:43
BITS AND PIECES	847	14:35:00	15:09:47	00:34:47	00:41:04
DEA II	1053	14:35:00	15:19:19	00:44:18	00:42:04
ICHIBAN	1089	14:35:00	15:22:04	00:47:04	00:43:13

A: Determine the Average Corrected Time (ACT) of the top 2/3rds of the Fleet.

The ACT of the top 2/3rds of the fleet becomes the benchmark to which a yacht's performance in a race is compared. In the example below there are 6 yachts. The top 2/3rds of the fleet would be the first 4 yachts. The ACT of the top 2/3rds of the fleet in our example is determined by adding the corrected times of the first 4 yachts together and dividing by 4 to calculate an average.

YACHT	CORRECTED TIME
KYTE	00:38:35 +
NO ONE ELSE	00:40:26 +
GETAFIX	00:40:43 +
BITS AND PIECES	00:41:04 +
TOTAL	= 02:40:48
	÷ 4
ACT	= 00:40:12

The ACT for the 6-yacht fleet is 40 minutes 12 seconds. The ACT is a reference point to assess how well a yacht has sailed. A yacht with a corrected time less than the ACT has outperformed the fleet whereas a yacht with a corrected time greater than the ACT has underperformed the fleet.

The ACT is multiplied by 110% to establish which yachts have given a poor performance in the race. Poor performances are generally not used in handicap calculations. In this example, multiplying the ACT by 110% gives 44 minutes 13 seconds. If a yacht has a corrected time greater than this she will have been deemed to have a poor performance in a race and her times will be disregarded. For a yacht that has just started racing, a poor performance might be due to a handicap that a yacht is struggling to match so some handicap change might still be applied even if from a poor performance. In this race, no yachts have had a poor performance. Accordingly, all 4 yachts' corrected times can be used to update their HKPN.

B: HKPN Factor

Kyte finished in 38 minutes and 3 seconds. The ACT is 40 minutes and 12 seconds. For Kyte to have a corrected time equal to the ACT, she would have had to have an HKPN of 947. For this race, 947 is her HKPN Factor and is

considered as the handicap that Kyte raced to.

HKPN Factor is determined as follows: $HKPN \text{ Factor} = 1000 \times \text{Elapsed Time} \div \text{ACT}$

YACHT	HKPN	ELAPSED TIME	ACT	HKPN FACTOR
KYTE	986	00:38:03	00:40:12	947
NO ONE ELSE	1041	00:42:05	00:40:12	1047
GETAFIX	952	00:38:46	00:40:12	964
BITS AND PIECES	847	00:34:47	00:40:12	865
DEA II	1053	00:44:18	00:40:12	1102
ICHIBAN	1089	00:47:04	00:40:12	1171

If two or more races are sailed on the same day an average HKPN Factor for the day is calculated based on all races sailed.

C: The moving average of the last 4 race days

Prior to our example race, a yacht's HKPN was calculated by adding averaging the HKPN Factor from her most recent 4 race days.

YACHT	HKPN FACTOR RACE 1	HKPN FACTOR RACE 2	HKPN FACTOR RACE 3	HKPN FACTOR RACE 4	HKPN POST RACE 4
KYTE	954	985	1013	992	986
NO ONE ELSE	1068	1026	1050	1044	1041
GETAFIX	952	982	941	933	952
BITS AND PIECES	851	862	843	847	847
DEA II	1100	1000	1070	1042	1053
ICHIBAN	1085	1063	1088	1120	1089

After race 5 there is a new race day to consider. The moving average changes to include races 2 to 5 instead of races 1 to 4.

YACHT	HKPN FACTOR RACE 1	HKPN FACTOR RACE 2	HKPN FACTOR RACE 3	HKPN FACTOR RACE 4	HKPN FACTOR RACE 5	HKPN POST RACE 5	% CHANGE POST RACE 5
KYTE	954	985	1013	992	946	984	-0.2
NO ONE ELSE	1068	1026	1050	1044	1047	1042	+0.1
GETAFIX	952	982	941	933	964	955	+0.3
BITS AND PIECES	851	862	843	847	865	854	+0.8
DEA II	1100	1000	1070	1042	1102	1054	+0.1
ICHIBAN	1085	1063	1088	1120	1171	1111	+2.0

The HKPN calculated after race 5 is the number that will appear on the HKPN list before race 6. The maximum increase in handicap for a yacht with an established race history is 1.5% so Ichiban would be capped at 1101 on the new HKPN list. There is no limit to handicap change for a newly handicapped yacht during her first few races.

The handicap change of DEA II in this race highlights an interesting point. She was 5th, behind Bits and Pieces, but receives a smaller handicap change. Note that a moving average of 4 HKPN factors determine a handicap, not podium positions (i.e. 1st, 2nd, 3rd). It is mathematically possible that a yacht can win a race and her handicap will go up!

YACHT	HKPN FACTOR RACE 1	HKPN FACTOR RACE 2	HKPN FACTOR RACE 3	HKPN FACTOR RACE 4	HKPN FACTOR RACE 5	HKPN POST RACE 4	HKPN POST RACE 5	% CHANGE
WINNER	940	985	1013	992	952	983	986	+0.3

These methods of calculation are almost identical to that used to calculate HKPNs since 1997. Historically, handicaps were only updated after every 4 races. Since 2009 handicaps have been reassessed after every race, between two races days of a race series and after regattas.